FIG._A1

FIG._A2

FIG._A3

FIG._B1

FIG._B2

FIG._B3

FIG._C1

FIG._D1

FIG._D2

FIG._C2

FIG._C3

FIG._D3

FIG._D4

FIG._D5

FIG._D6

FIG._D7

FIG._D8

FIG._D9

FIG._D10

FIG._E1A

FIG._E1B

FIG._E1

FIG._E2

FIG._E3

FIG._E4

FIG._E5

408-2
(64)

458

454-2
(64) (64) (64)
456-2

460

FIG._E6

CASTDOWN
(top level)
404

422
(V)
(V)
CASTDOWN
(variant)
(V)

458
(16)
(16)
CASTDOWN
(explicit)
(16)

FIG._E7

(64)
(32)
478
(16)

(32)
(16)

484
482
486
480
488

FIG._E8

CASTUP
(top level)
402

418
CASTUP
(variant)

420
CASTUP
(explicit-64 bit)

FIG._E9

FIG._F1

FIG._F2

FIG._F3

(Bit) ▷□——524——▷○ 522 ——528——□◁ (Bit)
526   530

FIG._F4

548~ 540   542~ 506   500   544   546~ 550
    ▷□—□ 500 ▷○ □   □◁
534   532   508 536   538

FIG._F5

FIG._F6

FIG._F7

FIG._F8

	Exposer	Collector
Bit (1-bit)	—	—
Dbit (2-bits)	Dbit — [Dbit] — bit / bit	bit / bit — [Dbit] — Dbit
Nibble (4-bits)	Nibble — [Nibble] — Dbit / Dbit	Dbit / Dbit — [Nibble] — Nibble
Byte (8-bits)	Byte — [Byte] — Nibble / Nibble	Nibble / Nibble — [Byte] — Byte
Word (16-bits)	Word — [Word] — Byte / Byte	Byte / Byte — [Word] — Word
Dword (32-bits)	Dword — [Dword] — Word / Word	Word / Word — [Dword] — Dword
Qword (64-bits)	Qword — [Qword] — Dword / Dword	Dword / Dword — [Qword] — Qword

FIG._G1

FIG._G2

FIG._G3

600
(Location, State)
ATOM
FIG._H1

602
604
SOURCE
FIG._H2

606
608
SINK
FIG._H3

610
612
614
TRANSPORT
FIG._H4

616
ASSIGNMENT
FIG._H5

AND
FIG._H6

OR
FIG._H7

INVERT
FIG._H8

EXPOSER
FIG._I1

COLLECTOR
FIG._I2

VARIANT SELECTOR

FIG._I3

COMPOSITE OBJECT

FIG._I4

TRANSPORT JUNCTION

FIG._I5

Menu Commands

∞ Viva 1.0
File   Edit   View   System   Help

FIG._J-1

File Menu

⨂ **Viva 1.0**				
<u>F</u>ile	<u>E</u>dit	<u>V</u>iew	<u>S</u>ystem	<u>H</u>elp

New Project   F2
Open Project   F3
Save Project   F4
Save Project As...
Save Project As Text...

New Sheet   F5
Duplicate Sheet
Open Sheet   F6
Save Sheet As... F7

Convert Sheet to Object F8
Delete Sheet
Play/Stop Sheet F9

Print
Print Setup...

Exit

FIG._J-2

FIG._J-3

New Project
Open Project
Save Project
Save Project As
New Sheet
Duplicate Sheet
Open Sheet
Save Sheet As
Convert Sheet to Object
Delete Sheet
Play/Stop
Print
Print Setup
Exit   Quits VIVA.

New Project Command 🔲

```
o8o  Viva 1.0
─────────────────────────────────────
File │ Edit  View  System  Help
─────────────────────────────────────
 🔲  New Project                    F2
 🗇  Open Project                   F3
 📱  Save Project                   F4
 📱  Save Project As...
     Save Project As Text...
─────────────────────────────────────
 📄  New Sheet                      F5
 📄  Duplicate Sheet
 📑  Open Sheet                     F6
 📱  Save Sheet As...               F7
─────────────────────────────────────
 📑  Convert Sheet to Object        F8
 📑  Delete Sheet
 ▷  Play/Stop Sheet                F9
─────────────────────────────────────
     Print
     Print Setup...
─────────────────────────────────────
     Exit
```

FIG._J-4

Open Project Command 🗇

```
Open                                                    [?][X]
─────────────────────────────────────────────────────────────
Lookin:  [🗁 PViva1            ] [▽] [🔲] [⬚] [⬚] [⊞] [≣]
┌─────────────────────────────────────────────────────────┐
│  ▽ drw12.idl          ▽ xLibDiv.idl                     │
│  ▽ mook.idl           ▽ xLibMuL.idl                     │
│  ▽ newproj.idl        ▽ xTestDisplay.idl                │
│  ▽ TestDisplay.idl    ▽ xTestSymbol2.idl                │
│  ▽ TestSymbol2.idl                                      │
│  ▽ xDrw12.idl                                           │
└─────────────────────────────────────────────────────────┘
File name:    [drw12.idl                        ]    [ Open  ]
Files of type: [Implementation Independent Algorithm Descr ▽]  [Cancel]
```

FIG._J-5

Save Project Command 🗄

```
┌─────────────────────────────────────────┐
│  ⚙ Viva 1.0                              │
├─────────────────────────────────────────┤
│ File │ Edit  View  System  Help          │
├─────────────────────────────────────────┤
│  🗋  New Project                      F2  │
│  🗁  Open Project                     F3  │
│  🗄  Save Project                     F4  │
│  🗄  Save Project As...                   │
│      Save Project As Text...              │
│                                           │
│  📄  New Sheet                        F5  │
│  📄  Duplicate Sheet                      │
│  🗐  Open Sheet                       F6  │
│  🗄  Save Sheet As...                 F7  │
│                                           │
│  📑  Convert Sheet to Object          F8  │
│  📑  Delete Sheet                         │
│  ▷  Play/Stop Sheet                   F9  │
│                                           │
│      Print                                │
│      Print Setup...                       │
│                                           │
│      Exit                                 │
└─────────────────────────────────────────┘
```

FIG._J-6

Save Project As Command 🗄

```
┌──────────────────────────────────────────────────────────────┐
│ Save As                                              [?][X]   │
├──────────────────────────────────────────────────────────────┤
│  Save in: [ 🗀 PViva1            ▽ ] [🗀][🖉][🗁][▦][▤]        │
│  ┌──────────────────────────────────────────────────────────┐ │
│  │ ▽ drw12.idl          ▽ xLibDiv.idl                       │ │
│  │ ▽ mook.idl           ▽ xLibMuL.idl                       │ │
│  │ ▽ newproj.idl        ▽ xTestDisplay.idl                  │ │
│  │ ▽ TestDisplay.idl    ▽ xTestSymbol2.idl                  │ │
│  │ ▽ TestSymbol2.idl                                        │ │
│  │ ▽ xDrw12.idl                                             │ │
│  └──────────────────────────────────────────────────────────┘ │
│                                                                │
│  File name:     [ xTestDisplay.idl                     ] [Save]  │
│  Save as type:  [ Implementation Independent Algorithm Descr ▽ ] [Cancel] │
└──────────────────────────────────────────────────────────────┘
```

FIG._J-7

New Sheet Command 📄

Duplicate Sheet Command 📄

❀ **Viva 1.0**

<u>F</u>ile	<u>E</u>dit	<u>V</u>iew	<u>S</u>ystem	<u>H</u>elp

🔊	<u>N</u>ew Project	F2
🔖	<u>O</u>pen Project	F3
🗐	<u>S</u>ave Project	F4
🗐	Save Project <u>A</u>s...	
	Save Project As <u>T</u>ext...	

📄	New She<u>e</u>t	F5
📄	D<u>u</u>plicate Sheet	
🖋	Open Sheet	F6
🗐	Sa<u>v</u>e Sheet As...	F7

📑	<u>C</u>onvert Sheet to Object	F8
🗐	<u>D</u>elete Sheet	
▷	P<u>l</u>ay/Stop Sheet	F9

	<u>P</u>rint	
	P<u>r</u>int Setup...	

	E<u>x</u>it	

FIG._J-8

❀ **Viva 1.0**

<u>F</u>ile	<u>E</u>dit	<u>V</u>iew	<u>S</u>ystem	<u>H</u>elp

🔊	<u>N</u>ew Project	F2
🔖	<u>O</u>pen Project	F3
🗐	<u>S</u>ave Project	F4
🗐	Save Project <u>A</u>s...	
	Save Project As <u>T</u>ext...	

📄	New She<u>e</u>t	F5
📄	D<u>u</u>plicate Sheet	
🖋	Open Sheet	F6
🗐	Sa<u>v</u>e Sheet As...	F7

📑	<u>C</u>onvert Sheet to Object	F8
🗐	<u>D</u>elete Sheet	
▷	P<u>l</u>ay/Stop Sheet	F9

	<u>P</u>rint	
	P<u>r</u>int Setup...	

	E<u>x</u>it	

FIG._J-9

Open Sheet Command 🖋

Open	? ⊠

Look in: 🗁 PViva1 ▽ 📁 ⊘ 📂 ▦ 📑

▽ ALib.jpg	▽ alib99.jpg
▽ ALib0.jpg	▽ mook.jpg
▽ ALib1.jpg	▬ TestAnd.jpg
▽ alib2.jpg	▽ testMUX.jpg
▽ ALib3.jpg	▽ thomLIB.jpg
▽ ALib3a.jpg	▽ thomMUX.jpg

File <u>n</u>ame: TestAnd.jpg   **Open**

File of <u>t</u>ype: I2adl Page ▽   **Cancel**
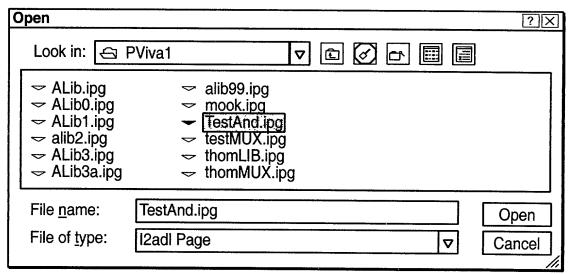
FIG._J-10

Save Sheet As Command

Viva 1.0

File	Edit	View	System	Help

New Project	F2	
Open Project	F3	
Save Project	F4	
Save Project As...		
Save Project As Text...		
New Sheet	F5	
Duplicate Sheet		
Open Sheet	F6	
Save Sheet As...	F7	
Convert Sheet to Object	F8	
Delete Sheet		
Play/Stop Sheet	F9	
Print		
Print Setup...		
Exit		

Save As

Save in: PViva1

ALib.ipg
ALib0.ipg
ALib1.ipg
alib2.ipg
ALib3.ipg
ALib3a.ipg

alib99.ipg
mook.ipg
TestAnd.ipg
testMUX.ipg
thomLIB.ipg
thomMUX.ipg

File name: Sheet 1.ipg

Save as type: I2adl Page

Save

Cancel

FIG._J-11

Convert Sheet To Object Command 🔲

Convert Sheet to Object

Object Name │ Sheet 1 │   Tree Group │ Composite Objects │ ▽

○ Create New Object   ◉ Update Original Object

┌─ Documentation ──────────────────

─ Attributes ─

Inputs	DataSets:
In1	Byte
In2	Byte
ScrollBar1 OnChange S	Bit
Outputs:	DataSets:
(Set) ScrollBar3 Position	DWord
Attributes:	Values:

☐ Leave Sheet Open
☐ View Control Nodes

│ ✓ OK │   │ ✗ Cancel │

FIG._J-12

Tree Group | Composite Objects | ▽

FIG._J-13

FIG._J-14

Delete Sheet Command 🖃

⠿ **Viva 1.0**

<u>F</u>ile	<u>E</u>dit <u>V</u>iew <u>S</u>ystem <u>H</u>elp

⬙ <u>N</u>ew Project   F2
◌ <u>O</u>pen Project   F3
⬙ <u>S</u>ave Project   F4
⬙ Save Project <u>A</u>s...
  Save Project As <u>T</u>ext...

⬙ New S<u>h</u>eet   F5
⬙ D<u>u</u>plicate Sheet
⬙ Open She<u>e</u>t   F6
⬙ Sa<u>v</u>e Sheet As... F7

⬙ <u>C</u>onvert Sheet to Object F8
⬙ Delete Sheet
▷ P<u>l</u>ay/Stop Sheet   F9

<u>P</u>rint
P<u>r</u>int Setup...

E<u>x</u>it

Viva Error Message	☒

Warning

Error Number: | 45 |

Message: | Ok to close sheet without saving changes? |

☐ Disable this message in the future | Help |
☐ Disable all future error messages

| ✓ Yes | | ⊘ No |

FIG._J-15

Run Behavior Page $\boxed{\triangleright}$

Viva 1.0

| File | Edit | View | System | Help |

 🗊 New Project   F2
 🗇 Open Project   F3
 🗈 Save Project   F4
 🗈 Save Project As...
     Save Project As Text...

 🖹 New Sheet   F5
 🖺 Duplicate Sheet
 🖺 Open Sheet   F6
 🖺 Save Sheet As...   F7

 🗐 Convert Sheet to Object   F8
 🗐 Delete Sheet
 ▷ Play/Stop Sheet   F9

   Print
   Print Setup...

   Exit

FIG._J-16

Print Command

ಹ Viva 1.0

| File | Edit | View | System | Help |

 🗊 New Project   F2
 🗇 Open Project   F3
 🗈 Save Project   F4
 🗈 Save Project As...
     Save Project As Text...

 🖹 New Sheet   F5
 🖺 Duplicate Sheet
 🖺 Open Sheet   F6
 🖺 Save Sheet As...   F7

 🗐 Convert Sheet to Object   F8
 🗐 Delete Sheet
 ▷ Play/Stop Sheet   F9

   Print
   Print Setup...

   Exit

FIG._J-17

Print Setup Command

Print Setup   ? ✕

┌─ Printer ──────────────────────

Name   [Brother HL-1240 series   ▽]   [Properties]

Status   Default printer Ready

Comment

┌─ Paper ────────────────   ┌─ Orientation ──────

Size   [Letter 8 1/2 x 11 in   ▽]   🅰   ● Portrait

Source   [Paper Cassette   ▽]   ○ Landscape

                          [OK]   [Cancel]

FIG._J-18

Exit

⊛ **Viva 1.0**				
<u>F</u>ile	<u>E</u>dit	<u>V</u>iew	<u>S</u>ystem	Hel<u>p</u>

<u>N</u>ew Project　　　　　　　　F2
<u>O</u>pen Project　　　　　　　F3
<u>S</u>ave Project　　　　　　　F4
Save Project <u>A</u>s...
Save Project As <u>T</u>ext...

New S<u>h</u>eet　　　　　　　　F5
D<u>u</u>plicate Sheet
Open Sh<u>ee</u>t　　　　　　　F6
Sa<u>v</u>e Sheet As...　　　　　F7

<u>C</u>onvert Sheet to Object　F8
<u>D</u>elete Sheet
P<u>l</u>ay/Stop Sheet　　　　　F9

<u>P</u>rint
P<u>r</u>int Setup...

E<u>x</u>it

FIG._J-19

Edit Menu

⊛ **Viva 1.0**			
<u>F</u>ile	<u>E</u>dit	<u>V</u>iew	<u>S</u>ystem

<u>U</u>ndo

<u>C</u>ut　　Ctrl+X
<u>C</u>opy　Ctrl+C
<u>P</u>aste　Ctrl+V
<u>D</u>elete　Del

FIG._J-20

View Menu

⊗ **Viva 1.0**			
File Edit View	System Help		

Object Names
Node Names
Nodes
Sort by Tree Group/Name
Descend Into Sheet   F10

View Object Names — Displays the object name above each object.

View Node Names — Displays each node name instead of each node's icon.

View Nodes — Displays node colors on Transports. (Node colors correspond to data types).

Sort by Tree Group/Name — Sorts the Object Tree in alphabetical order.

Descend into Sheet — This displays the Behavior Page of the selected object. (This feature is also available by double-clicking on the object.)
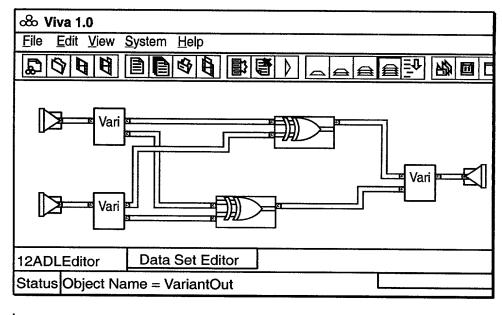
FIG._J-21

View Object Names ▭

⚙ **Viva 1.0**

File   Edit   View   System   Help

[toolbar icons]

Input

[diagram: Input → Vari → XOR; Input → Vari → XOR; → Vari → output]

XOR

XOR

Vari

12ADLEditor | Data Set Editor

Status | Object Name = Transport

⚙ **Viva 1.0**

File   Edit   View   System   Help

[toolbar icons]

[diagram: Vari → XOR; Vari → XOR; → Vari → output]

Vari

12ADLEditor | Data Set Editor

Status | Object Name = VariantOut
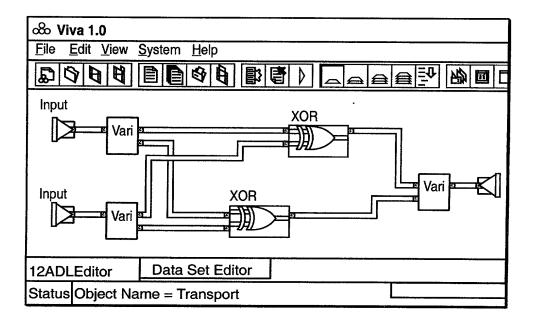
FIG._J-22

View Node Names 🔲

FIG._J-23

View Nodes 🔲

```
┌─────────────────────────────────────────────────────────────┐
│ 🔗 Viva 1.0                                                   │
├─────────────────────────────────────────────────────────────┤
│  File   Edit  View  System  Help                             │
├─────────────────────────────────────────────────────────────┤
│  [toolbar icons]                                             │
├─────────────────────────────────────────────────────────────┤
│                                                              │
│         [logic circuit diagram]                              │
│                                                              │
├─────────────────────────────────────────────────────────────┤
│ 12ADL Editor  │  Data Set Editor                            │
└─────────────────────────────────────────────────────────────┘
```
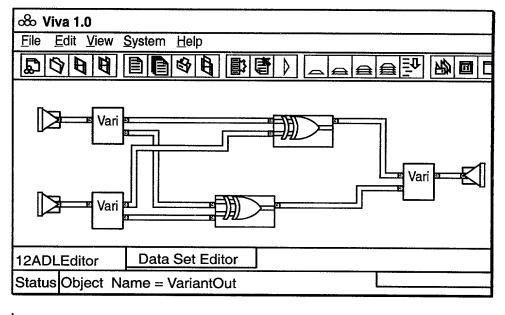
FIG._J-24

Sort by Tree Group/Name 🔲

FIG._J-25

```
┌──────────────────────────────┐
│ ⊟─🔳 Composite Objects     ▲ │
│   ⊞─🔳 ?                      │
│   ⊞─🔳 0                      │
│   ⊞─🔳 1                      │
│      🔳 abs                   │
│   ⊞─🔳 Add                    │
│   ⊞─🔳 aMul                   │
│      🔳 Assign                │
│      🔳 Cast                  │
│      🔳 CMP                   │
│   ⊞─🔳 Dec                    │
│      🔳 Div                   │
│      🔳 iDiv                  │
│   ⊞─🔳 iMul                   │
│   ⊞─🔳 Inc                    │
│      🔳 Mul                   │
│   ⊞─🔳 Sign                   │
│   ⊞─🔳 Sub                    │
│      🔳 XDiv                  │
│      🔳 XMul                  │
│   ⊞─🔳 Bit Operations        │
│   ⊞─🔳 System Low Level       │
│   ⊞─🔳 Test Pages          ▼ │
├──────────────────────────────┤
│ Project Objects│System Objects│
└──────────────────────────────┘
```
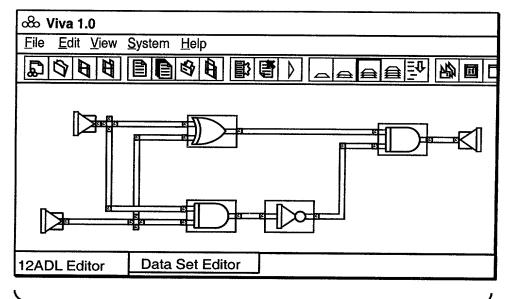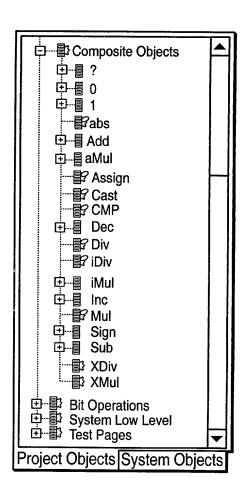
Descend Into Sheet

The <u>Behavior Page</u> of a VIVA Module can usually be diplayed by either double clicking on the object, or by clicking on the descend icon [≡↓] after the Module has been selected using a left mouse click. The following is the Behavior Page for an Exclusive OR Module.
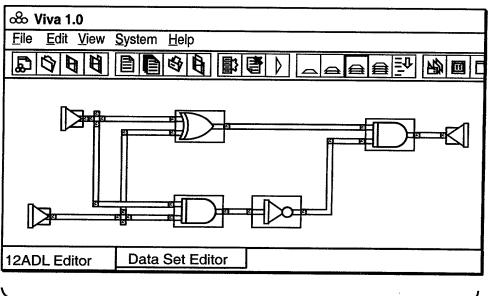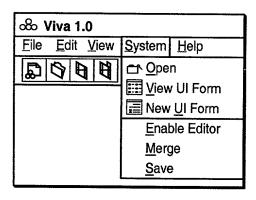

FIG._J-26

System Menu

<u>Open System</u> [□↑] Select the target system (X86 or Floating Point Gate Array).

FIG._J-27

Open System

Viva 1.0

File Edit View System Help

Open
    View UI Form
    New UI Form
    Enable Editor
    Merge
    Save

12ADL Editor   Data Set Edit

Open

Look in: VivaSystem

BaseXPoint.sd
DefaultSystem.sd

File name: BaseXPoint.sd

Files of type: System Description

Open

Cancel

FIG._J-28

VIEW UI Form

Form1

0000FFFF 0000FFFF

0000FFFF 0000FFFF

255 255 255 255 255 255 255 255

FIG._J-29

NEW UI Form

∞ Viva 1.0   _ □ ☒

File Edit View System Help

Open

⌂ Open
▦ View UI Form
▤ New UI Form
Enable Editor
Merge
Save

Look in: ⬐ VivaSystem   ▷   🔄 ⬙ ⬆   ▤ ▥

🔲 DefaultInterface.dll
🔲 DrawInterface.dll

File name: |_____| Open

Files of type: | VivaForms   ▷ | Cancel

FIG._J-30

Help Menu

```
┌──────────────────────────────────────────────────────┐
│ ⚛ Viva 1.0                                            │
├──────────────────────────────────────────────────────┤
│ File  Edit  View  System │ Help │                     │
├──────────────────────────┴──────┴─────────────────────┤
│  ▤▤▤▤ ▤▤    3 Contents              F1                 │
│              Search for Help On                        │
│              How to Use Help                           │
│             ├──────────────────────┤                  │
│              About                                     │
│                                                        │
│                                                        │
└──────────────────────────────────────────────────────┘
```
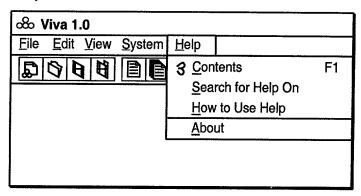
FIG._J-31

```
┌──────────────────────────────────────────────────────┐
│ ▦ About VIVA                              _ ▫ ☒        │
├──────────────────────────────────────────────────────┤
│                                                        │
│    VIVA Version 1 0                                    │
│                                                        │
│                                                        │
│    Copyright © 07 Sep 2000 StarBridgeSystems           │
│                                                        │
│                                                        │
│    Revision 0059                                       │
│                                                        │
│                    ┌──────────┐                        │
│                    │ ✓ OK     │                        │
│                    └──────────┘                        │
└──────────────────────────────────────────────────────┘
```

FIG._J-32

ToolBar Controls

The Graphical User Interface of VIVA was designed to allow you to specify the desired behavior of the target computer environment.

File Commands

🗋	New Project	Clears all objects, pages, and Modules.
📄	Open Project	Load and display a VIVA project.
📄	Save Project	Saves the current project.
📄	Save Project As	Saves and renames the current project projects.
📄	New Sheet	Creates a new blank sheet.
📄	Duplicate Sheet	Duplicates the current sheet.
📄	Open Sheet	Loads a sheet from a file.
📄	Save Sheet As	Saves current sheet as a file.
📄	Convert Sheet	Captures sheet behavior as a VIVA Module.
📄	Delete Sheet	Erases and deletes current Behavior Page.
📄	Run/Stop	Executes the behavior on the displayed Behavior Page.

View Details

📄	View Object Names	The names of the objects are displayed above the objects.
📄	ViewNode Names	The names of the nodes of the objects are displayed instead of the object's icon.
📄	View Nodes	The node colors are displayed on Transports. (Node colors correspond to data types.)
📄	Sort by Tree Group/Name	Sorts the Object Tree in alphabetical order.
📄	Descend into Sheet	Display the Behavior Page of the selected object (Also available by double-clicking on the object.)
📄	Open System	Selects the target system.
📄	View UI Form	Displays the User Interface Form.
📄	New UI Form	Allows you to Select a new User Interface Form.
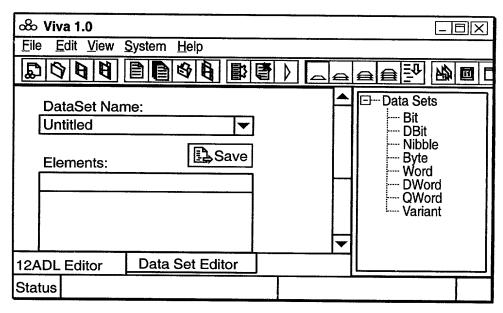
FIG._J-33

DataSet Editor

Viva 1.0

File   Edit   View   System   Help

12ADL Editor | Data Set Editor

Status

New Project
  Sheet 1

Data Set Ex
Primitive Ob
  Assign
  AND
  OR
  INVERT
  Input

Project Obje

FIG._J-34

DataSet Editor

Viva 1.0

File   Edit   View   System   Help

DataSet Name:
Untitled

Elements: Save

12ADL Editor | Data Set Editor

Status

Data Sets
  Bit
  DBit
  Nibble
  Byte
  Word
  DWord
  QWord
  Variant

When done with defining the new data set, you press the Save Button   Save

FIG._J-35

Edit Attributes Dialog

▦ **Edit Attributes**					|_|□|X|

Object Name `Add`   Tree Group `Composite Objects` ▽

┌─ Attributes ─────────────────┐   ┌─ Documentation ──────────
Inputs:		▲
In2	Variant	
In1	Variant	
C	Bit	
Outputs:		
C	Bit	
Out2	Variant	
Attributes:		▼

Generic polymorphic
addition. Produces the
correct result for unsigned
integers, signed integers,
and fixed point. The result is
cast to the type of the lower
input.

This module also produces
the correct result for a
mixture of signed and
unsigned inputs.

☐ View Control Nodes

[OK] [Cancel]

FIG._J-36

Constructing VIVA Modules

FIG._J-37

FIG._J-37-1

FIG._J-37-2

Behavior Pages

FIG._J-38

FIG._J-38-1

```
┌─────────────────────────────────────────────┐
│ ♣ Viva 1.0                        _ ▢ ✕      │
│ File  Edit  View  System  Help               │
│ ┌──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┐           │
│ │  │  │  │  │  │  │  │  │  │  │ ▷│           │
│ └──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┘           │
│                                               │
│                                               │
│                                               │
└─────────────────────────────────────────────┘
```
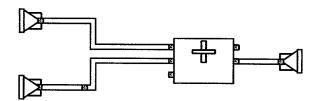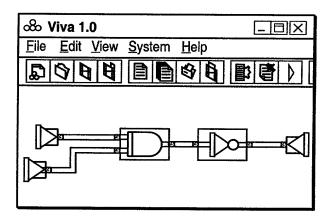
FIG._J-38-2

Convert Sheet to Object command from the File Menu, or select the ToolBar icon, ▤ .

FIG._J-38-3

This Module may now be used to contruct other behavior pages for Modules with more complex behavior.

Node labels for the inputs and outputs of the NAND Module are the same labels on the inputs and outputs of the Behavior Page.

FIG._J-38-4

Connecting Transports
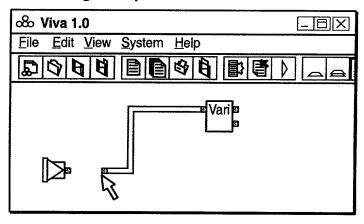
FIG._J-39

Connecting Junctions
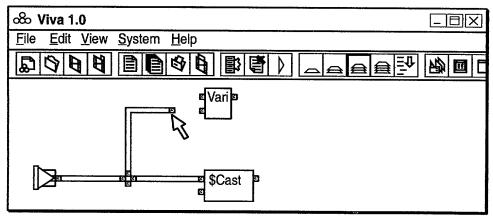
FIG._J-40

Convert Sheet To Object Command 📟

Convert Sheet to Object

Tree Group [Composite Objects] ▽

Object Name [Sheet 1]

○ Create New Object   ◉ Update Original Object

Attributes

Inputs:	DataSets:
In1	Byte
In2	Byte
ScrollBar1 OnChange S	Bit
Outputs:	DataSets:
(Set) ScrollBar3 Position	DWord
Attributes:	Values:

Documentation

☐ Leave Sheet Open
☐ View Control Nodes

[✓ OK]   [✗ Cancel]

FIG._J-41

Tree Group | Composite Objects | ▼

FIG._J-42

Object Trees

FIG._J-43

⊞····◁ Data Set Exposures
⊟····⚙ Primitive Objects
       ····⚙ Assign
       ····⚙ AND
       ····⚙ OR
       ····⚙ INVERT
       ····⚙ Input
       ····⚙ Output
       ····⚙ Variant Select
       ····⚙ Junction
⊟····▦ Composite Objects
       ⊞····⊟ ?
       ⊞····⊟ 0
            ····▦ abs
       ⊟····⊟ Add
              ····▦ Add
              ····▦ Add
       ⊞····⊟ aMul
            ····▦ asMul
            ····▦ Cast
            ····▦ CMP
       ⊞····⊟ Dec
            ····▦ Div
            ····▦ iDiv
       ⊞····⊟ iMul
       ⊞····⊟ Inc
            ····▦ Mul
       ⊞····⊟ One
       ⊞····⊟ Sign
       ⊞····⊟ Sub
            ····▦ XOR
⊞····▦ Bit Operations
⊞····▦ System Low Level
⊞····▦ Test Pages

⊟····⊟ Add
      ····▦ Add
      ····▦ Add
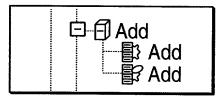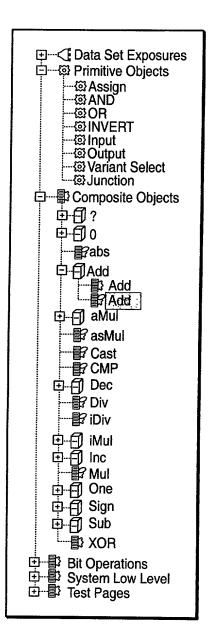
FIG._J-44-2　　　　**FIG._J-44-1**

Modifying an Input

Edit Attributes	_ ⊟ ☒

Object Name | Input |

Attributes

Name:	DataSet:
In1	Variant
Attributes:	Values:

▷

☐ View Control Nodes

| OK | | Cancel |

FIG._J-45

Modifying an Output

Edit Attributes	_ ⊟ ☒

Object Name | Output |

Attributes

Name:	DataSet:
Out1	Variant
Attributes:	Values:

◁

☐ View Control Nodes

| OK | | Cancel |

FIG._J-46

VIVA Constants

FIG._J-47

FIG._J-48
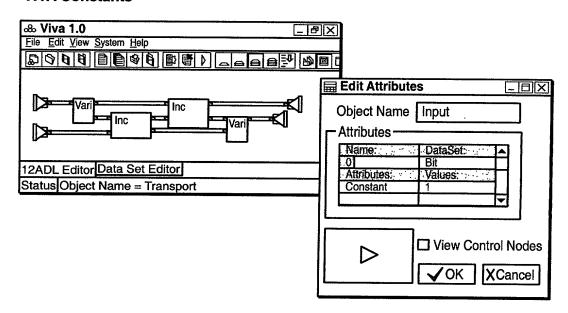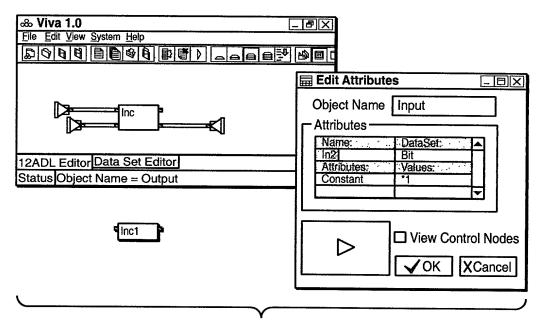
Forcing GateWare Allocation

Edit Attributes		_ □ ☒

Object Name `OR`   Tree Group `Composite Objects ▽`

Attributes

Inputs:	
In1	Variant
In2	Variant
Outputs:	
Out1	Variant
Attributes:	
ChildAttribute	"System=XPoint"

Documentation

☐ View Control Nodes

OK	Cancel

FIG._J-49

FIG._K1
(PRIOR ART)

In | Inv | Out

FIG._K2
(PRIOR ART)

STATE
Out | In

In | Inv | Out

700

708

FIG._K3

704 | 702 | 706

712 | 710

FIG._L1 {

FIG._L2 {

FIG._L3 {

FIG._L4 {

FIG._L5 {

FIG._L6 {

FIG._L7

FIG._L8

CLK

FIG._L9

CLCK

FIG._L10

250

$^A DS_4 \Rightarrow$ | V / A

A=B

A>B

A<B

FIG._L11

$250'$

DS_2

720

DS_4 — V | EXP

250

A | A=B

A>B

A<B

722

O | A=B MUX | bit

724

A>B MUX | bit

720

DS_4 — V | EXP

$250'$

A | A=B

A>B

A<B

726

A<B MUX | bit

DS_2

FIG._L12

FIG._L13

FIG._L14

FIG._M1

FIG._M2

FIG._M3

780

Insert "9"

FIG._N1

Col.

Col.

Col.

Col.

782

4-bit

FIG._N2

C1

C2

C3

E1

E2

E3

FIG._O1

FIG._O2

FIG._O3
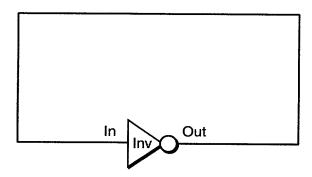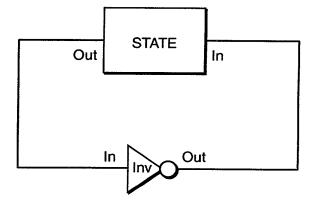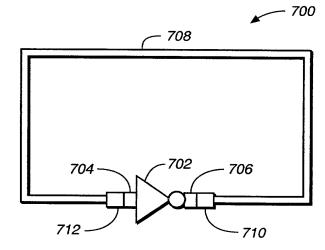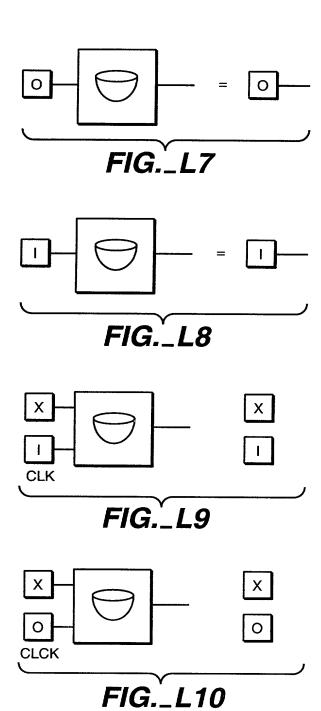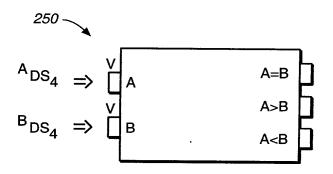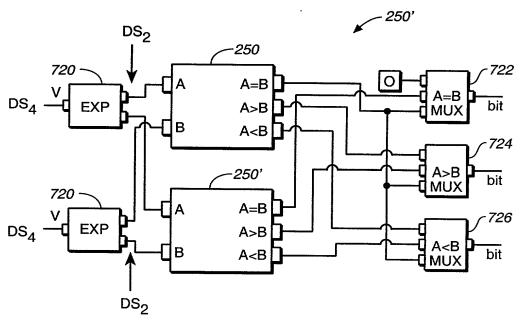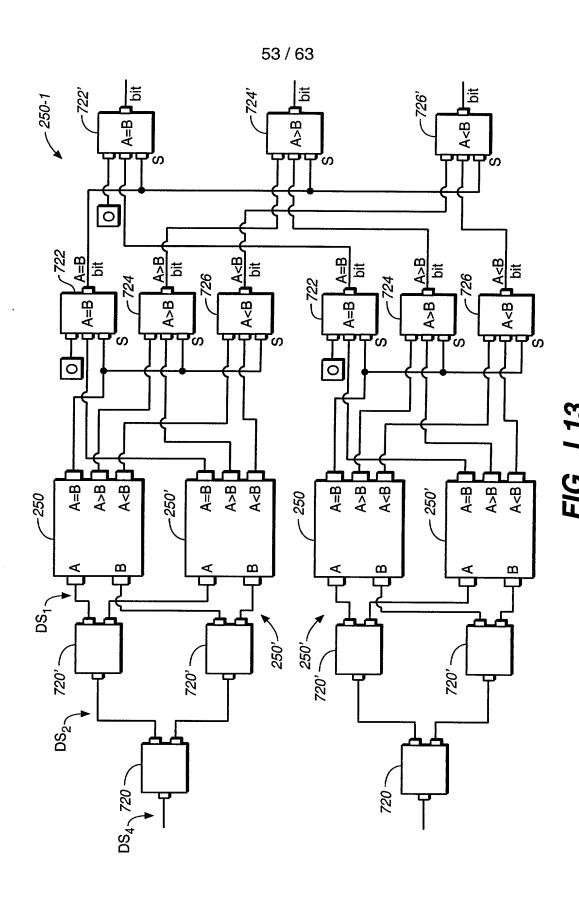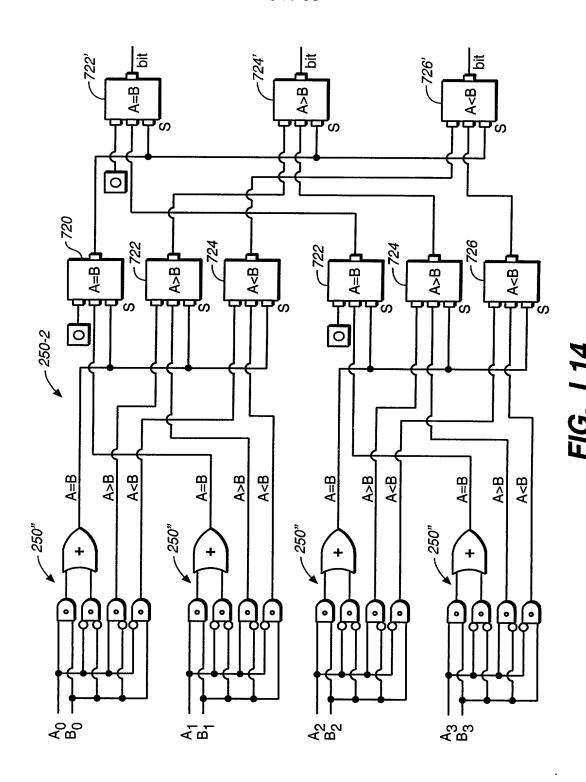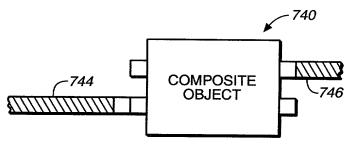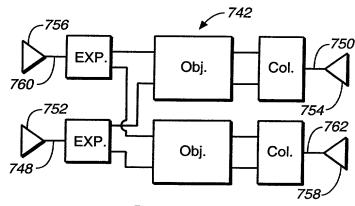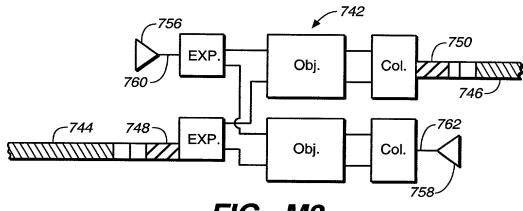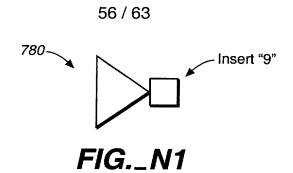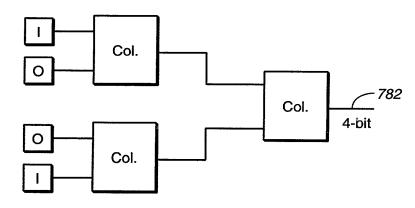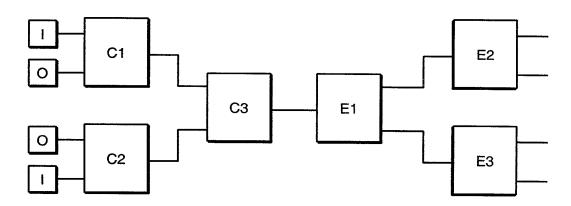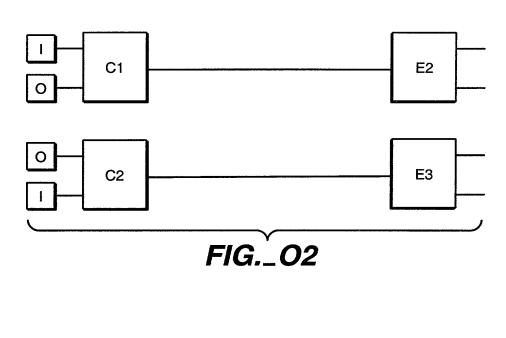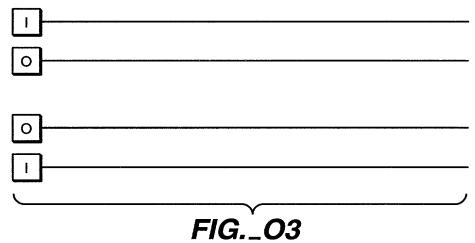
Carry	1		0		1		
A		1	1	0	1	1	0
B		1	0	0	0	1	0
Sum	1	0	1	1	0	0	0

FIG._P1

Carry	1	0	0	1	1	0	
A		1	1	0	1	1	0
B		1	0	0	0	1	0
Sum	1	0	1	1	0	0	0

FIG._P2

FIG._P3

FIG._P4

FIG._P5

FIG.__P6

FIG._P7